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### Laparoscopic Versus Open Inguinal Hernia Repair: A Single Institution Comparison of 1200 Patients

Shai Stewart MD

*Children's Mercy Hospital*

Wendy Jo Svetanoff

James Fraser

*Children's Mercy Hospital*

Rebecca M. Rentea

*Children's Mercy Kansas City*

Pablo Aguayo

*Children's Mercy Kansas City*

*See next page for additional authors*

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**Submitting/Presenting Author**

Shai Stewart MD, Wendy Jo Svetanoff, James Fraser, Rebecca M. Rentea, Pablo Aguayo, David Juang, Jason D. Fraser, Charles L. Snyder, Richard J. Hendrickson, Shawn D. St.Peter, and Tolulope A. Oyetunji

# Laparoscopic Versus Open Inguinal Hernia Repair: A Single Institution Comparison of 1200 Patients

Shai Stewart MD, Wendy Jo Svetanoff MD MPH, James A. Fraser MD, Rebecca M. Rentea MD MS, Pablo Aguayo MD, David Juang MD, Jason D. Fraser MD, Charles L. Snyder MD, Richard J. Hendrickson MD, Shawn D. St. Peter MD, Tolulope A. Oyetunji MD MPH

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### Background

- Inguinal hernia repair (IHR) is among the most common operations performed in pediatric surgery, accounting for greater than 10% of the caseload.
- Open inguinal hernia repair (OIHR) has traditionally been the gold standard; however, laparoscopic repair is becoming more prevalent in the pediatric surgery community.
- Benefits of laparoscopy: superior visualization, minimal dissection and decreased tissue injury, improved cosmesis, decreased postoperative pain, and a more rapid return to normal function.
- We hypothesize similar outcomes.

### Methods

- A retrospective review of patients under 18 years who underwent IHR between June 2010 and June 2017 was performed. The open technique utilized high ligation at the internal ring, while laparoscopic repair involves hydro-dissection and percutaneous suture passage for high ligation.
- Demographics, operative characteristics, and complications were compared.

### Results

**Table 1: Comparison of Demographic Characteristics Between Patients Who Underwent Open Versus Laparoscopic Inguinal Hernia Repair.** Continuous data are expressed as medians with interquartile ranges; categorical data are expressed as percentages.

	Open Hernia Repair (n=598)	Laparoscopic Hernia Repair (n=602)	P-value
Male Gender	553 (93%)	492 (81.7%)	< 0.01
Ethnicity			
Caucasian	416 (69.9%)	426 (71.0%)	0.67
African American	79 (13.3%)	89 (14.8%)	0.46
Multiracial	35 (5.9%)	36 (6.0%)	0.94
Hispanic	41 (6.9%)	26 (4.3%)	0.05
Other	24 (4.0%)	23 (3.8%)	0.86
Gestational Age (weeks)	38 (34, 40)	36 (31, 39)	<0.01
Age at Operation (years)	1.61 (0.65, 3.18)	1.89 (0.41, 5.34)	0.03
Side of Repair			
Unilateral	397 (66.4%)	259 (43.0%)	<0.01
Bilateral	201 (33.6%)	343 (57.0%)	<0.01
ASA Class			
Class 1	329 (55.6%)	270 (45.0%)	<0.01
Class 2	191 (32.2%)	212 (35.3%)	0.26
Class 3	67 (11.3%)	112 (18.7%)	<0.01
Class 4	5 (0.8%)	6 (1.0%)	0.71
Outpatient Procedure	581 (97.2%)	527 (88.1%)	<0.01

\*ASA = American Society of Anesthesiology

**Table 2: Comparison of Post-operative Complications Between Patients Who Underwent Open Versus Laparoscopic Inguinal Hernia Repair.** Continuous data are expressed as medians with interquartile ranges; categorical data are expressed as percentages.

	Open Hernia Repair (n=598)	Laparoscopic Hernia Repair (n=602)	P-value
Recurrent Hernia	15 (2.5%)	30 (5.0%)	0.02
Metachronous Hernia	20 (3.3%)	5 (0.8%)	<0.01
Post-operative Hydrocele	22 (3.7%)	24 (4.0%)	0.45
Injury to Vas or Vessels	0 (0%)	0 (0%)	-
Post-operative Bleeding	4 (0.7%)	7 (1.2%)	0.28
Wound Infection	6 (1.0%)	7 (1.2%)	0.51
Stitch Abscess	4 (0.7%)	2 (0.3%)	0.34
Conversion to Open	-	2 (0.3%)	-
Post-operative ER Visit	26 (4.4%)	20 (3.3%)	0.21

\*ER = emergency room

**Table 3: Multivariate regression analysis**

Recurrent Operative Intervention	Odds Ratio	P value	95% CI
Female (ref = male)	1.01	0.97	0.52-1.98
Laparoscopic (ref = open)	0.84	0.46	0.53-1.33
Race (ref = White)			
African American	0.48	0.07	0.21-1.07
Hispanic	0.95	0.92	0.37-2.47
Asian	0.37	0.34	0.05-2.78
Native American	1.00		
Multiracial	1.08	0.86	0.45-2.60
Native Hawaiian	1.00		
Other	1.00		
Age at operation	1.00	0.82	0.98-1.02
Weight at operation	1.01	0.29	0.99-1.03
ASA Class (ref = ASA 1)			
2	1.24	0.40	0.75-2.04
3	1.78	0.07	0.96-3.32
4	4.16	0.08	0.83-20.75

CI = Confidence Interval

### Conclusion

Our data reinforces the advantage offered by the laparoscopic approach, which is the ability to detect and simultaneously repair contralateral PPV, reducing the chances of a MCIH in the future. We demonstrate that either approach is appropriate as both offer a safe and effective option in treating pediatric IH.